

AN OVERVIEW OF SCHOOL CHEMICAL MANAGEMENT

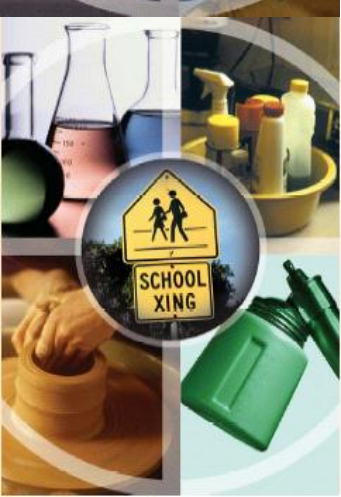
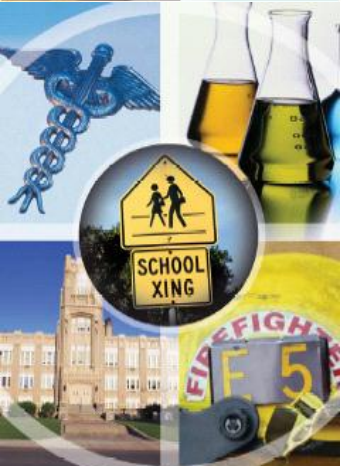
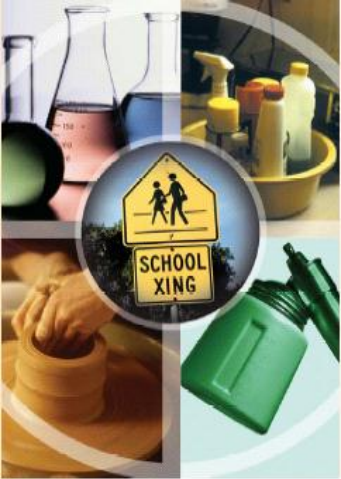
Whose job is it?

It's All About Teamwork!

Administrators, teachers, community members,
facilities personnel, industry partners



School Benefits



Overview of Problem

Example 1

- Spring 2005, Hamilton County, TN
- Unknown employees accidentally disposed lab chemicals in regular trash
- Fire...
- Lab clean out and resulting fire and cleanup cost was ~\$80,000

Overview of Problem

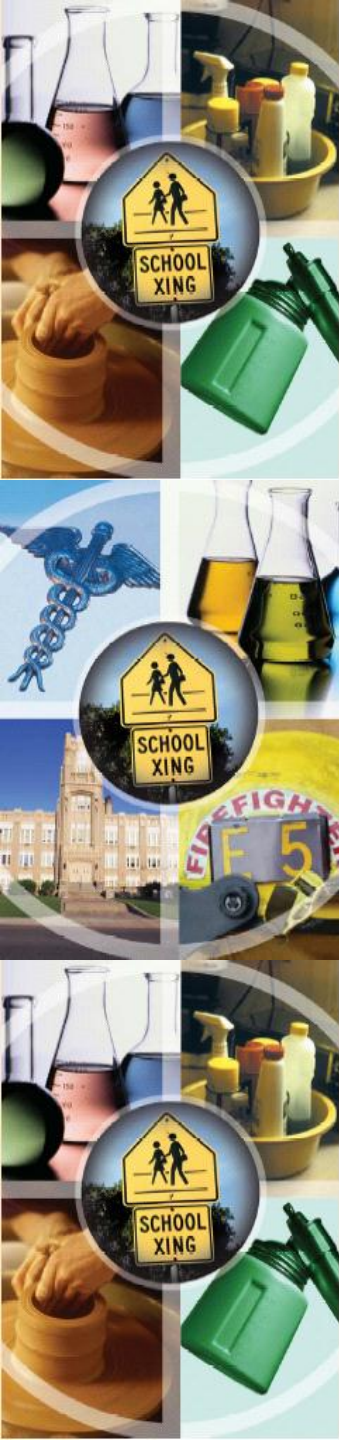
Example 2

- Custodian entered a MS science storage area and became unconscious
- A teacher had spilled a solution of 37% formaldehyde in the room and failed to tell anyone
- Fortunately the custodian was rescued

Where are the Chemicals?

- Maintenance Areas
- Vocational Shops
- Science Laboratories
- Art Classrooms
- Offices

*Curriculum
Chemicals*



Why Be Concerned About Chemical Management?

- Health hazards
 - immediate & long-term
- Safety hazards
 - stability of shelves, storage methods and incompatibility
- Environmental harm
 - groundwater, discharges to streams/rivers, air pollution
- Hidden costs/liabilities
 - lawsuits, fines, paperwork/fees, insurance premiums, etc.

Examples: Poor Storage Practices

- Water reactives near / under sink
- Heavy containers on high shelves
- Corrosives on (corroded) metal shelves
- Flammables stored on wood
- Alphabetical storage (incompatible?)
- Unlabeled/“mystery” contents
- Student access
- Chemicals next to food

Stockpiling/Overpurchasing and Underestimating Hazards



Incompatible Chemical Storage



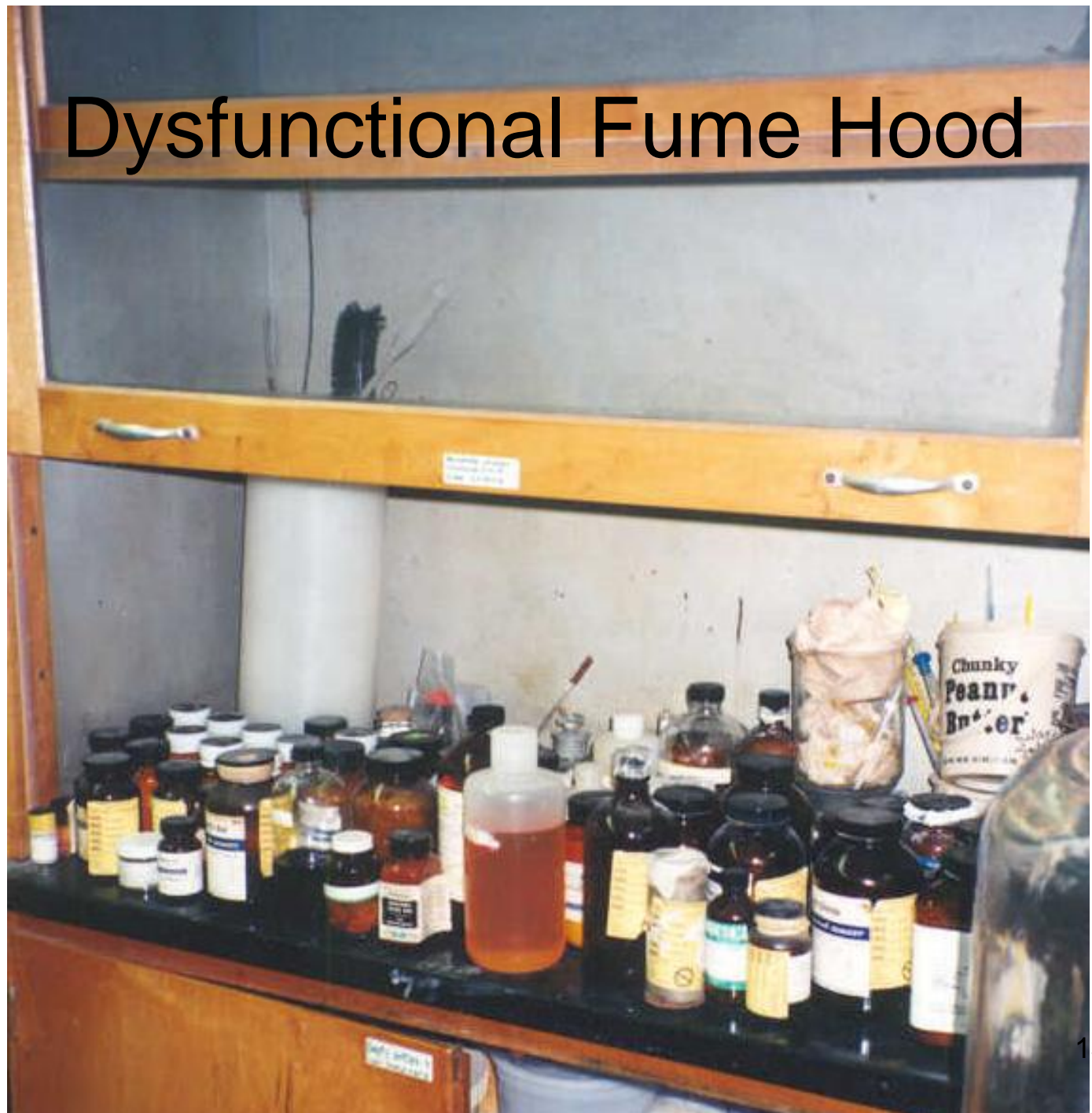
Poor Choice of Chemicals *(high flammability material)*



Metal shelving deterioration



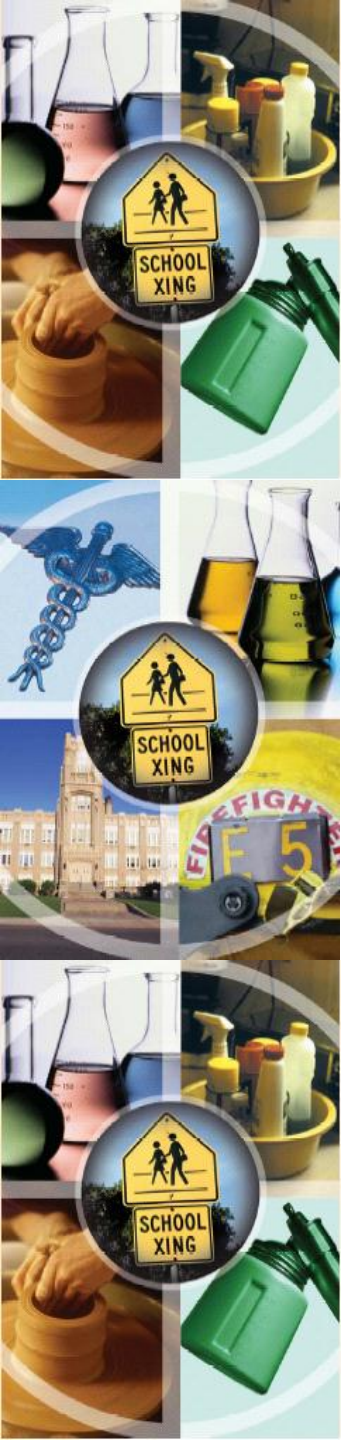
Dysfunctional Fume Hood



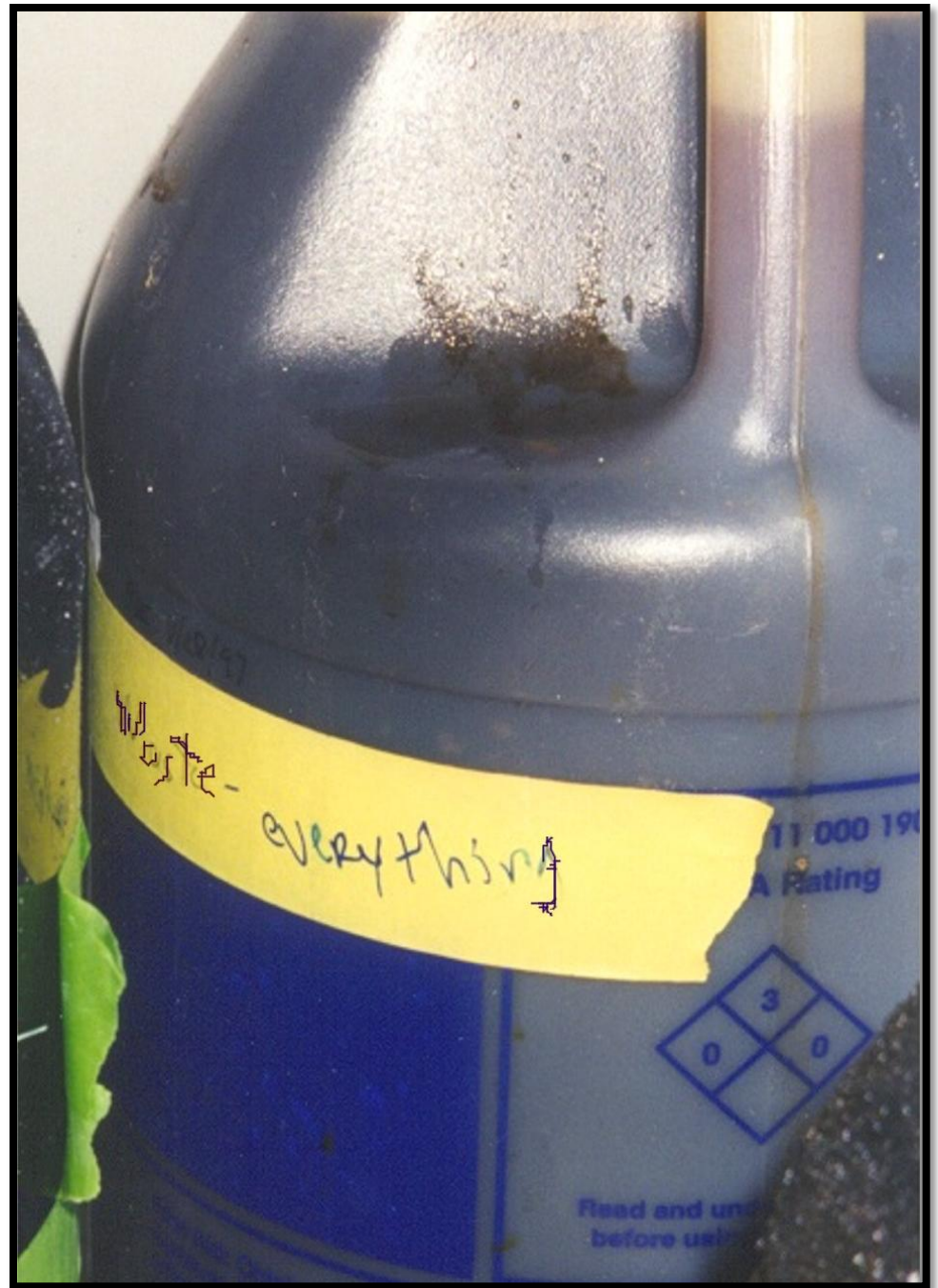
Special Case



Nitric Acid + Cyanide = Imminent Danger



What is
it?



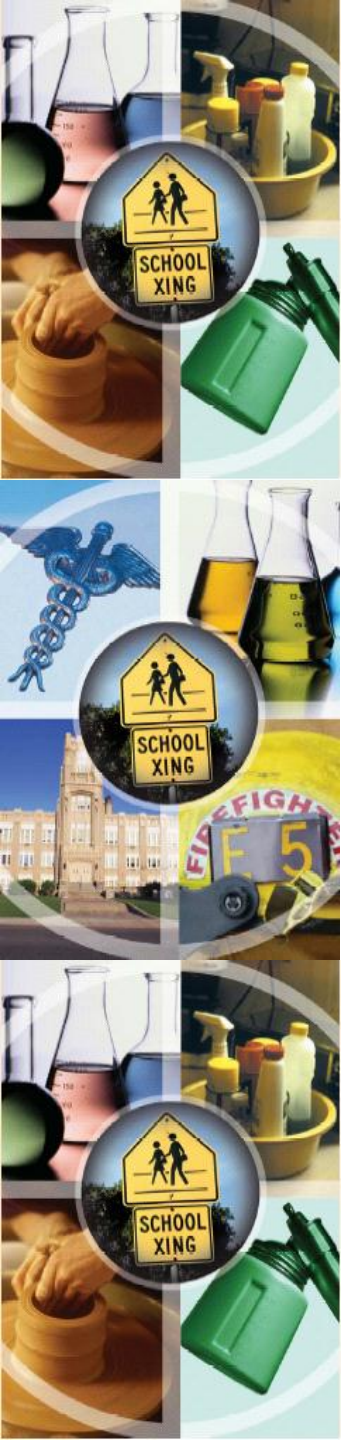
Why are there problems with chemical management in schools?

- Lack of awareness
- Lack of environmental management system (EMS)
- Lack of “somebody in charge” (*add-on duty*)
- Discount warehouse store effect
- “Spend it or lose it” funds

Why are there chemical management problems in schools?

(continued)

- Stockpiles from the 1950's
- Lack of communication across Academic, Administrative, & Facilities departments
 - not working together on chemical management
- Facilities often not built for handling chemicals (ventilation, storage problems)

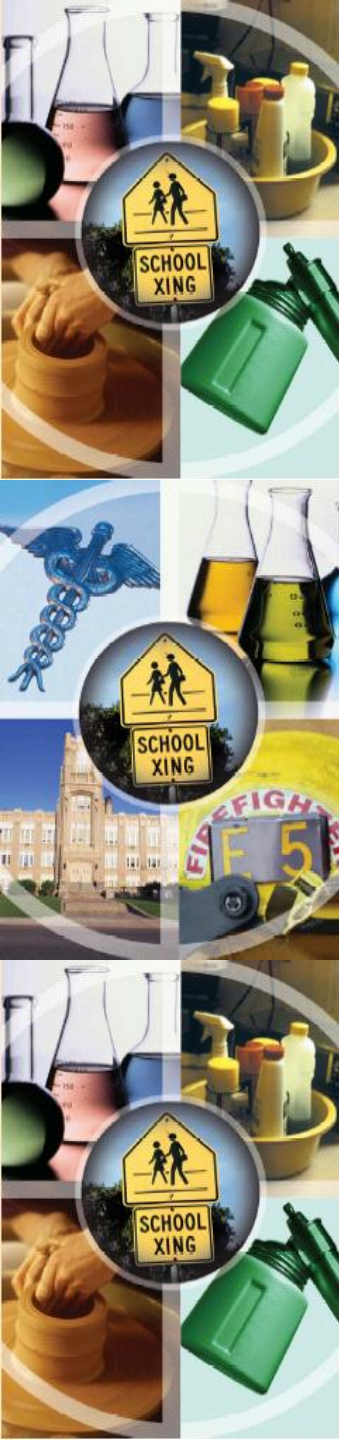


Next Steps

So ... WHAT DO WE DO?

1. Short Term Actions

- Learn about chemical hazards
 - today is just the first step
- Learn about requirements at various levels
 - Federal (e.g. OSHA HazCom, Chem RTK)
 - State
 - Local (e.g. building or fire code)
 - District
- No-cost / low cost solutions



OSHA's Occupational Exposure to Hazardous Chemicals in Laboratories standard (**29 CFR 1910.1450**), referred to as the Laboratory standard, specifies the mandatory requirements of a **Chemical Hygiene Plan** (CHP) to protect laboratory workers from harm due to hazardous chemicals. The CHP is a written program stating the policies, procedures and responsibilities that protect workers from the health hazards associated with the hazardous chemicals used in that particular workplace.

29 CFR § 1910.1450(b) Regulation Defining CHO and Duties (Mandatory)

- **Chemical Hygiene Officer**— “an employee who is designated by the employer—and who is qualified by training or experience—to provide technical guidance in the development and implementation of the provision of the Chemical Hygiene Plan.
- School system administrators must acknowledge that the **CHO is responsible for the safety of students and staff alike.**
- To be an effective CHO, the school administrators must **provide the CHO needed time, support and sufficient resources to do a thorough job.**



- The Superintendent is the Chief Executive Officer (CEO) of the School district
- The Principal is the CEO of the school.
- The Superintendent of the School district is the CHO of the School district until a designee is appointed.
- The Principal of a school is the CHO of the school until a designee is appointed.
- The CHO designees must be **knowledgeable of and qualified in the duties of a CHO.**

1. Short Term Actions

(continued)

- Build awareness
 - Administration
 - Business Officials
 - Purchasing
 - Facilities / Maintenance
- Elements to build awareness
 - Issue is important
 - It needs attention
 - It needs funding

1. Short Term Actions

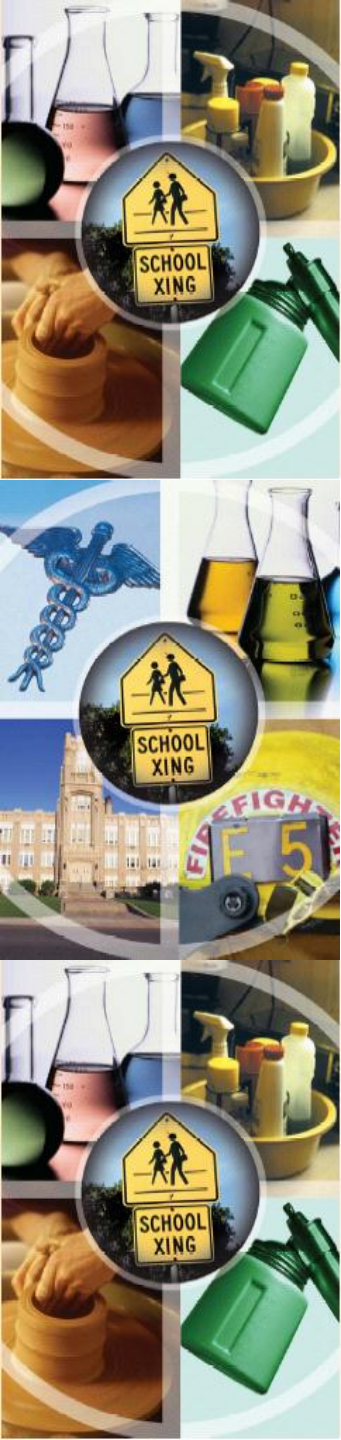
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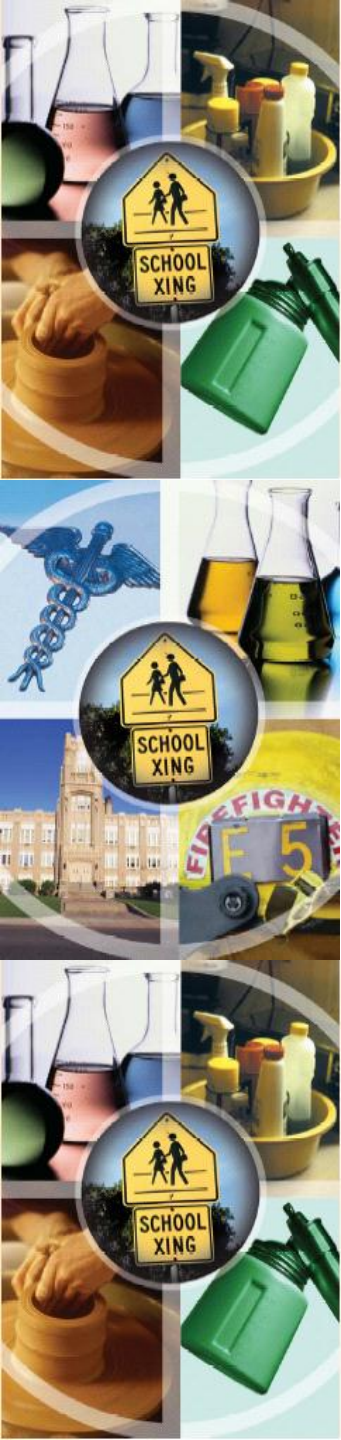
- Work with professionals to identify hazards
- Get rid of the Stockpiles
 - Prescreen
 - Inventory
 - Remove chemicals
 - Hazardous
 - Outdated
 - No longer needed

1. Short Term Actions

(continued)

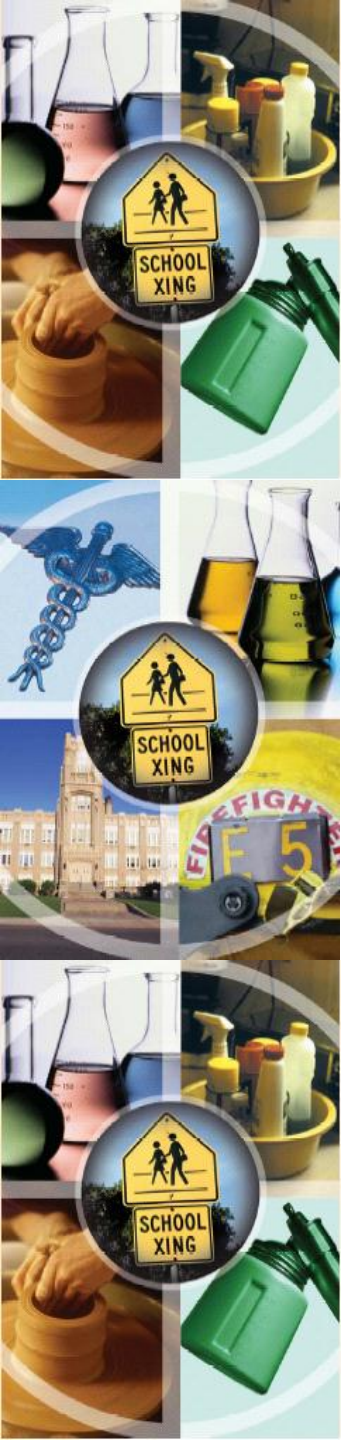
- Obtain and maintain Material Safety Data Sheets (MSDSs)
 - Keep 1 set in lab, maintenance area
 - Keep 1 set in office





2. No-cost or Low-cost Solutions

- Smart Purchasing
 - BULK is not Best
- Secondary Containment for Liquids
- Flammable & Acid Storage Cabinets
- NOT Storing Alphabetically
- No inventory –No MSDS



2. No-cost or Low-cost Solutions (continued)

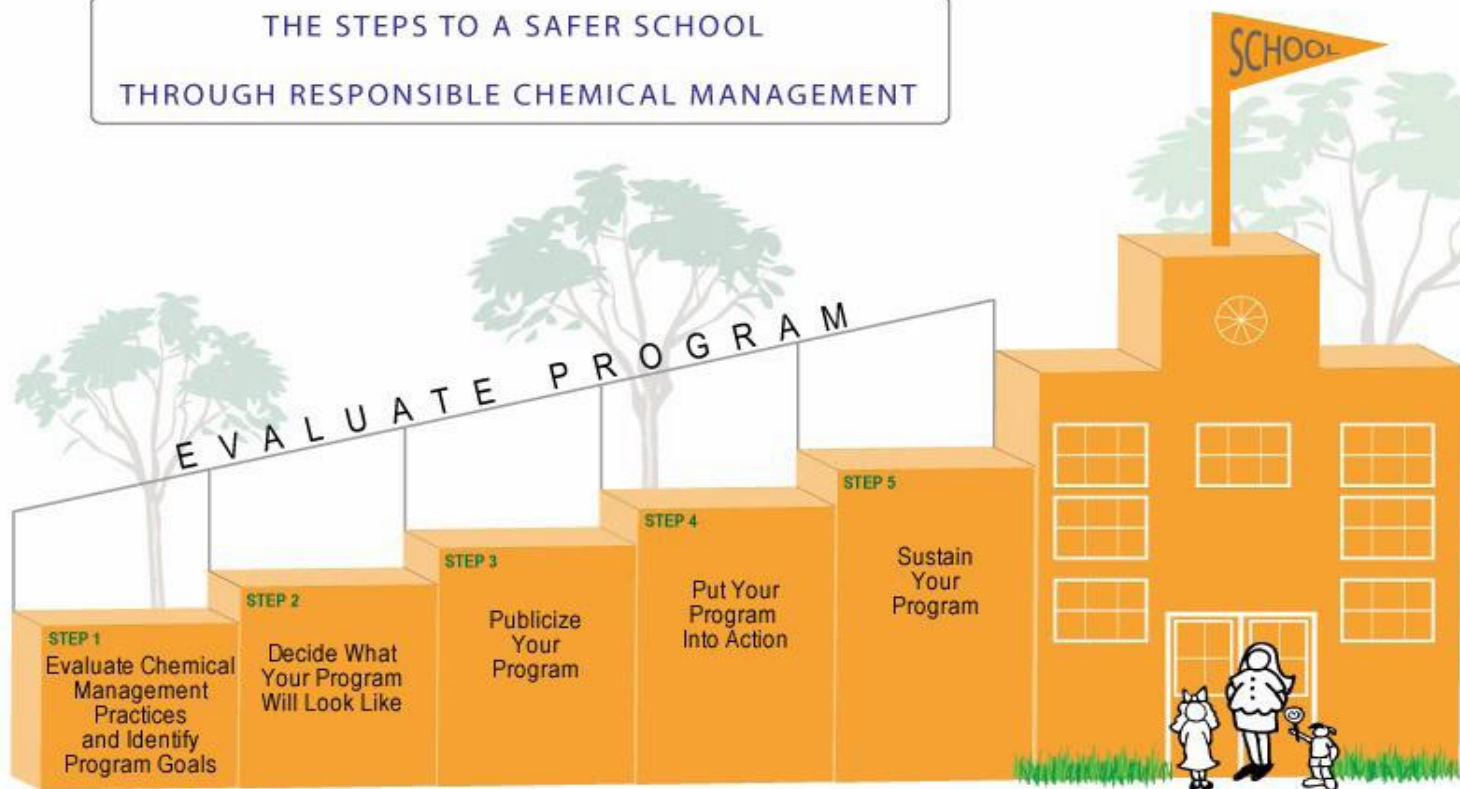
- Placarding
- Lips and Ridges
- Eye Wash Stations –Maintenance
- Signs / access
- Working across school
 - e.g. chemistry teachers access to maintenance disposal contract

3. Longer Term Goals

- Develop a school-wide chemical management system
 - Purchase
 - Storage, including labeling
 - Use, including labeling
 - Disposal
 - Emergency Planning
 - spills, explosions, accidents

Steps for Creating a Responsible Chemical Management Program

THE STEPS TO A SAFER SCHOOL
THROUGH RESPONSIBLE CHEMICAL MANAGEMENT



3. Longer Term Goals (continued)

- Use less and safer chemicals
 - Order minimum quantities, consistent with use
 - Try to keep only 1 year's worth stock
- Regularly budget for removals/disposal (*Cradle to grave*)
- Address chemical issues in context with other environmental concerns

“The Big Picture”

- Chemical mismanagement can affect
 - Safety
 - Health
 - Indoor Air Quality
 - Drinking Water Quality
 - Stormwater Quality
 - Security
 - and YOU!
- Environmental stewardship

What is a Chemical Management Program (CMP)?

1. Long-term solution to chemical management problems
2. Sustainable solution
3. CMP should include
 - one-time cleanout of outdated, accumulated chemicals
 - long-term plan for managing chemicals
 - implementation of prevention practices

What is a Chemical Management Program (CMP)? *(cont'd)*

4. Helps to ensure that the school is purchasing, storing, using, and disposing of its chemicals in a responsible manner
5. Can be part of Chemical Hygiene Plan
 - required for all labs, *even school labs*



Key components of a CMP

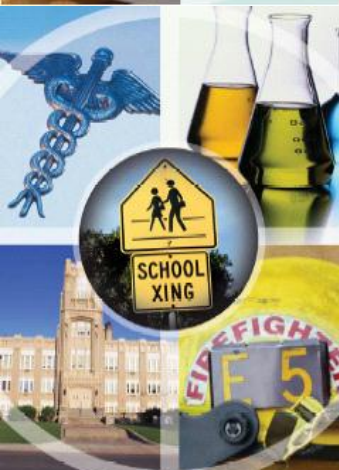
- Establish a **Chemical Management Plan**
- Conduct periodic chemical **inventories**
- **Plan and budget** for chemical purchases, management and disposal
- Establish environmentally preferable purchasing practices (**EPP**)
- Encourage school staff to **use the smallest amounts of the least hazardous chemicals**
- Offer chemical management and safety **training** for school staff

Special Case: Mercury

- Schools should get rid of mercury
 - Bulk
 - Equipment
- Any Hg spill **>1 fever thermometer** is a **LARGE** spill –get help!
- Any Hg spill **>2 Tbs** must be reported



Any time one pound or more of mercury is released to the environment, it is mandatory to call the **National Response Center (NRC)** at **(800) 424-8802**.



The NRC hotline operates 24 hours a day, 7 days a week.



Note that because mercury is heavy, only two tablespoons of mercury weigh about one pound

In Cleaning Up Small Hg Spills

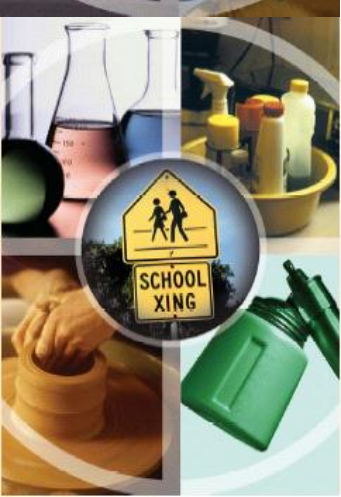
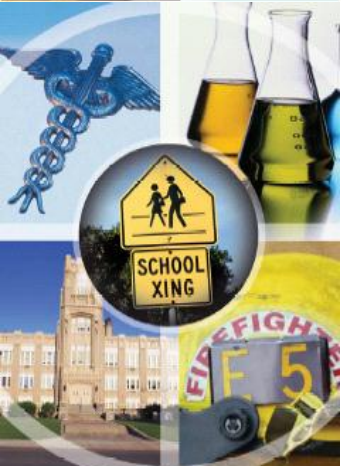
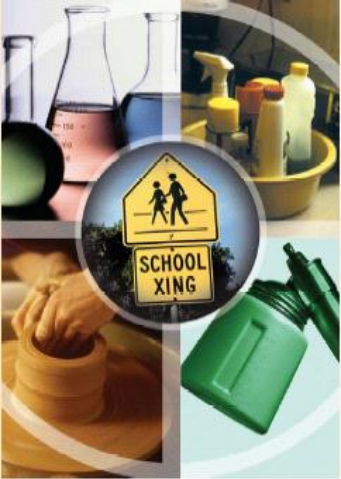
- Never use
 - Broom
 - Vacuum cleaner
- Don't pour down drain
- <http://www.epa.gov/mercury/spills/index.htm>

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Administrators, teachers, community members,
facilities personnel, industry partners



School Benefits



Resources

Chemical Management Resource Guide for School Administrators

<http://epa.gov/oppt/pubs/chemmgmt/index.html>

Healthy School Environments

<http://www.epa.gov/schools/>

Healthy School Environments Assessment Tool (HealthySEAT)

<http://www.epa.gov/schools/healthyseat/index.html>



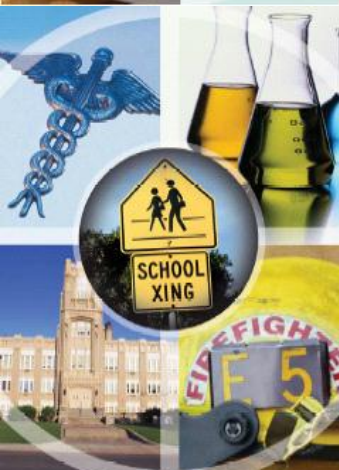
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